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Detailed Specifications for the WD Caviar WD172AA

Jameco Part Number 200803

Recommended Parameters
Physical Specifications
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Environmental Specifications

Recommended Setup Parameters	
Cylinders*	16383
Heads	16
Sectors/Track	63
Landing Zone	16383
WPC	16383

** All EIDE drives greater than 8.4 GB use 16383 cylinders, 16 heads, and 63 SPT due to interface restrictions. Click here for more information.*

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Physical Specifications	
Formatted Capacity*	17,247 MB
Interface	40-pin EIDE
Actuator Type	Rotary Voice Coil
Number of Platters	2
Data Surfaces	4
Number of Heads	4
Bytes Per Sector	512
User Sectors Per Drive	33,687,360
Servo Type	Embedded
Recording Method	Rate 16/17 PRML
ECC	Reed Solomon
Head Park**	Automatic

** Western Digital defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes*

*** Turning the system power off causes the WD Caviar to perform an automatic head park operation..*

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Performance Specifications	
Average Seek (Read)	9.5 ms typical, 15 ms maximum
Average Seek (Write)	11.5 ms typical, 17 ms maximum
Track to Track Seek	2.0 ms typical, 5 ms maximum
Full Stroke Seek (Read)	19 ms typical, 23 ms maximum
Index Pulse Period	11.11 ms (nominal)
Average Latency	5.5 ms (nominal)

Rotational Speed	5400 RPM (nominal)
Controller Overhead	0.3 ms average
Transfer Rate (Buffer to Host)	66.6 MB/s (Mode 4 Ultra ATA) 33.3 MB/s (Mode 2 Ultra ATA) 16.6 MB/s (Mode 4 PIO) 16.6 MB/s (Mode 2 multi-word DMA)
Transfer Rate (Buffer to Disk)	138.56 Mbits/s minimum 244.0 Mbits/s maximum
Interleave	1:1
Buffer Size	2 MB
Error Rate (Non-Recoverable)	<1 in 10^{14} bits read
Spindle Start Time - From Power-on to Drive Ready*	6 s typical, 16 s maximum
Contact Start/Stop Cycles (CSS)	40,000 minimum

** Defined as the time from power-on to the setting of the Drive Ready and Seek Complete including calibration.*

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Physical Dimensions	
Height	English: 1.028 inch Metric: 26.1 mm
Length	English: 5.787 inches Metric: 147 mm
Width	English: 4.00 inches (±0.010 inch) Metric: 101.6 mm (±0.25 mm)
Weight	English: 1.1 pounds (±0.11 pounds) Metric: ..500 kg (±0.050 kg)

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Electrical Specifications			
Current Requirments and Power Dissipation			
Operating Mode	**RMS Current***		**Power, Typical***
	12 VDC	**5 VDC**	
Spinup	1.8 A max	530 mA	24.3 W
Read/Write/Idle	240 mA	660 mA	6.18 W
Seek	580 mA	600 mA	9.96 W
Power Management Commands			

Power Management Commands			
Operating Mode	**RMS Current***		**Power, Typical***
	12 VDC	**5 VDC**	
Idle (E1H)	260 mA	660 mA	6.18 W
Standby (E0H)	30 mA	192 mA	1.32 W
Sleep (E6H)	30 mA	96 mA	.84 W

Input Voltage Requirements
+5.0V (±5%) and 12.0V (+10%/-8%)

Ripple		
	+12 VDC	**+5 VDC**
Maximum Frequency	200 mV (double amplitude) 0-20 MHz	100 mV (double amplitude) 0-20 MHz

Power Connectors and Cables	
Power Connector	4-pin AMP (P/N 84069-1 or equivalent)
Mating Connector	Body (AMP 1-480424-0 or equivalent) Pins (AMP 60619-4 or equivalent)
Power Cable Wire Guage	18 AWG (or heavier)

** All values are typical (25°C, 5.0V, and 12V input) except where specified as maximum.*

Note: *Current measurements cut off frequency at 1 kHz.*

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Environmental Specifications	
Shock: *Half sine wave 3 ms duration, measured without shock isolataion and with non-recoverable errors.*	Operating 20 G, 2 ms Non-operating 200 G, 2 ms
Vibration	Operating 5-20 Hz, 0.037 inches (double amplitude) 20-300 Hz, 0.75 G (0 to peak) Non-operating 5-20 Hz, 0.195 inches (double amplitude) 20-500 Hz, 4.0 G (0 to peak) Sweep Rate One-octave/minute minimum
Drive Generated Vibration	Operating: .10G maximum with the drive in an unconstrained condition
Rotational Shock	Amplitude 20K rad/sec^2 Duration 2 ms

Operating Temperature and Humidity	Temperature 5º C to 55º C (41ºF to 131ºF) 5º C to 65º C (case temp) Humidity 5-85% RH non-condensing 33°C (maximum wet bulb) Thermal Gradient 20°C/hour (maximum) Humidity Gradient 20%/hour (maximum)
Non-Operating Temperature and Humidity	Temperature -40º C to 60º C (-40ºF to 140ºF) Humidity 5-95% RH non-condensing 33°C (maximum wet bulb) Thermal Gradient 30 °C/hour (maximum) Humidity Gradient 20%/hour (maximum)
Altitude	Operating -1,000 feet to 10,000 feet (-305M to 3,050M) Non-Operating -1,000 feet to 40,000 feet (-305M to 12,200M)
Acoustics	Idle Mode* 33 dBA (average) 37 dBA (maximum) Seek Mode** 39 dBA (average) 43 dBA (maximum)
Reliability	AFR <0.8% MTBF 500,000 Hours Component Design Life 5 years Warranty Period 3 years

** No audible pure tones.*

*** Random seek at a rate of 26 seeks per second.*